

AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims, which replaces all previous versions and listings of the claims.

1. (currently amended) A welding implement, comprising:
a torch head operable to conduct electricity to a welding electrode disposed therein;
and

a thermal storage member ~~disposed internally with respect to the welding implement~~
~~and adapted to absorb heat from the torch head~~ and subsequently return the heat to the
welding implement, ~~wherein the thermal storage member is electrically isolated from the~~
~~torch head.~~

2. (original) The welding implement as recited in claim 1, wherein the thermal storage member comprises metal.

3. (original) The welding implement as recited in claim 1, wherein the thermal storage member comprises aluminum.

4. (original) The welding implement as recited in claim 1, comprising an electrically conductive tube operable to conduct electricity and gas to the torch head and heat from the torch head to the thermal storage member, wherein the thermal storage member is disposed around at least a portion of the tube.

5. (original) The welding implement as recited in claim 4, comprising an electrical insulator disposed between the tube and the thermal storage member, wherein heat is conducted from the tube to the thermal storage member through the electrical insulator.

6. (original) The welding implement as recited in claim 5, wherein the electrical insulator is adapted to position the thermal storage member axially along the tube.

7. (original) The welding implement as recited in claim 4, wherein the tube comprises a first conductive metal and the thermal storage member comprises a second conductive metal.

8. (original) The welding implement as recited in claim 1, wherein the torch head is air-cooled and operable to conduct 300 Amps at a 60 % duty cycle with a temperature increase of less than 30 K.

9. (previously presented) The welding implement as recited in claim 4, comprising a second tube disposed around a portion of the tube located proximate to the torch head.

10. (currently amended) The welding implement as recited in claim 1, comprising an electrical insulator disposed at least mostly or entirely over the thermal storage member.

11. (withdrawn - currently amended) A welding implement, comprising:
a tube operable to conduct electricity to a torch head and to conduct heat from the torch head;

a metal member disposed in a thermally conductive relationship with ~~around~~ the tube, wherein the metal member is configured to absorb heat from the torch head and subsequently return the heat to the tube; and

an electrical insulator disposed between the tube and the metal member.

12. (cancelled)

13. (cancelled)

14. (withdrawn) The welding implement as recited in claim 11, wherein the metal member is disposed around at least a portion of the tube.

15. (withdrawn – currently amended) The welding implement as recited in claim 11, wherein the electrical insulator is adapted to limit axial movement of the metal member relative to the metal tube.

16. (withdrawn) The welding implement as recited in claim 11, comprising a first connector coupled to the tube and coupleable to a second connector coupled to a gas hose and a power cable.

17. (withdrawn) The welding implement as recited in claim 11, comprising the torch head.

18. (withdrawn – currently amended) The welding implement as recited in claim 11, comprising an insulating material disposed at least mostly or entirely over the tube and metal member.

19. (withdrawn – currently amended) The welding implement as recited in claim 11, wherein the insulating material ~~is adapted with~~ includes a plurality of ridges adapted to produce friction with a handle disposed over the plurality of ridges.

20-25. (cancelled)

26. (withdrawn - currently amended) A welding implement, comprising:
means for storing heat generated from a torch head ~~to a thermal storage member in~~
the welding implement in a position electrically isolated from the torch head; and

means for ~~transferring~~returning the heat ~~stored in the thermal storage member~~ to the ~~air-welding implement to dissipate the stored heat~~ when power to the welding implement is removed.

27. (withdrawn - currently amended) A welding implement, comprising:
a torch head;
a first tubular member having a passage therethrough to couple gas to the torch head;
and
a second tubular member disposed over the first tubular member proximate to the torch head, wherein the second tubular member is configured to absorb heat from the first tubular member and subsequently return the heat to the first tubular member.

28. (withdrawn) The welding implement as recited in claim 27, wherein the first and second tubular members comprise copper.

29. (withdrawn - currently amended) A TIG welding system, comprising:
a power source; and
an air-cooled TIG welding torch electrically coupleable to the power source, comprising:
a torch head adapted to conduct electricity to an electrode disposed therein;
a thermal storage member electrically isolated from the torch head and adapted to store heat from the torch head when power is applied to the torch head and subsequently return the heat to the welding torch when power is not applied to the torch head; and
a first electrical insulator disposed over the torch head and thermal storage member.

30. (withdrawn) The TIG welding system as recited in claim 29, comprising:
a conductive tube adapted to couple electricity and gas to the torch head; and

a second electrical insulator disposed between the conductive tube and the thermal storage member.

31. (withdrawn) The TIG welding system as recited in claim 29, wherein the air-cooled TIG welding torch is operable to conduct 300 Amps at a 60 % duty cycle with a temperature increase of less than 30 K.

32. (withdrawn) The TIG welding system as recited in claim 29, wherein the air-cooled TIG welding torch is operable to conduct 300 Amps at a 60 % duty cycle with a temperature increase of less than or equal to 27 °F.

33. (currently amended) A welding implement, comprising:
a torch head including a collet assembly configured to support an electrode;
a conductor extending from the torch head and operable to electrically couple the torch head to a power source to route electrical current to the electrode; and
a metallic member disposed ~~internally with respect to the welding implement and~~
about the ~~conductor~~conductor and electrically isolated from the conductor and the torch head, wherein the metallic member is configured to absorb heat from the conductor and subsequently return the heat to the conductor.

34. (previously presented) The welding implement as recited in claim 33, comprising a dielectric material disposed between the metallic member and conductor.

35. (cancelled)

36. (previously presented) The welding implement as recited in claim 33, comprising a dielectric material disposed about the torch head, the metallic member, and the conductor.

37. (previously presented) The welding implement as recited in claim 33, wherein the torch head is air-cooled and operable to conduct 300 Amps at a 60% duty cycle with a temperature increase of less than 30K.

38. (new) The welding implement of claim 1, wherein the thermal storage member is adapted to absorb heat from the torch head while the torch head is conducting electricity and subsequently return heat to the welding implement while the torch head is not conducting electricity.

39. (new) The welding implement of claim 1, wherein the welding implement is adapted to dissipate heat returned from the thermal storage member.

40. (new) The welding implement of claim 1, wherein the thermal storage member is at least substantially enclosed within the welding implement.

41. (new) The welding implement of claim 1, wherein the thermal storage member is electrically isolated from the torch head.

42. (new) The welding implement of claim 33, wherein the metallic member is configured to absorb heat from the conductor while the conductor is conducting electricity and subsequently return heat to the conductor while the conductor is not conducting electricity.

43. (new) The welding implement of claim 33, wherein the conductor is adapted to dissipate heat returned from the metallic member when the conductor is not conducting electricity.

44. (new) The welding implement of claim 33, comprising thermal insulation at least substantially encasing the metallic member.

45. (new) A welding implement, comprising:
a torch head;
a conductor extending from the torch head;
a thermal storage member disposed proximate the conductor and configured to absorb heat from the conductor; and
a protective cover substantially enveloping the thermal storage member, wherein the protective cover is adapted to prevent a user from directly contacting the thermal storage member.

46. (new) The welding implement of claim 45, wherein the thermal storage member is configured to absorb heat from the conductor while the conductor is conducting electricity and to subsequently return heat to the conductor while the conductor is not conducting electricity.